

(2.) *Auroras* have been observed as follows: On the 6th in Ill., Me., and N. Y.; on the 7th in Conn., Ill., Me., Mass., Mich., N. H., N. J., N. Y. and Vt.; on the 8th in Me., N. H., and Vt.; on the 9th in Vt. and Iowa.; on the 26th in Conn., Me., Mass., Mich., N. H., and N. Y.

### OPTICAL PHENOMENA.

(1) *Solar halos* were reported as follows: From New Hampshire, New York and Pennsylvania on the 1st; Indiana and Ohio, on the 2d; Iowa on the 4th, Tennessee on the 5th; and from many other points on the 14th, 22d, 26th, 28th and 29th.

(2) *Lunar halos* were reported as follows: From Maryland, New Jersey, New York, Pennsylvania and Ohio, on the 10th; Maine, New Hampshire and Michigan, on the 13th; Illinois, Indiana, Iowa, Missouri, New York, Pennsylvania and North Carolina, on the 14th; and from other points on the 16th, 18th and 20th.

(3) *Mirage*.—Ellinwood, Kan., on the 14th, 17th, 22d and 27th; Traverse City, Mich., 8th and 28th.

### MISCELLANEOUS.

(1.) *Injury to vegetation*. In addition to the remarks already made on this topic, under the head of ATMOSPHERIC TEMPERATURE, (2.) the following notes are important: At Troy, Alabama, the field and garden crops have suffered. At Wilsonville, Alabama, on the 19th, the frost was damaging to fruits and vegetables. At Gainesville, Georgia, fruit was largely killed. At Wyanet, Illinois, plants froze under cover from the 15th to the 18th. At Vevay, Indiana, frost on 17th was killing. At Rising Sun, Indiana, on the 16th, 17th and 18th, the same case occurred. At Winchester and Pine Grove, Kentucky, fruits and vegetables were generally damaged. At Northport, Michigan, the winter-cold was very damaging to all fruits; grapes, however, wintered better than usual. At Asheville, North Carolina, on the 17th and 18th, peach and cherry crops were killed and apples injured; so also at Mount Pleasant, North Carolina. At Bellefontaine, and other points in Ohio, fruits of all kinds were injured. At Tarentum, and other points in Pennsylvania, fruit and wheat were injured. Beans were destroyed on 17th and 18th, at Hacienda Saludar South Carolina. In Tennessee and Virginia, fruit and vegetables were injured and trees and plants frozen.

(2.) *Meteors* were reported in Ill. on the 2d and 3d; Ga. and S. C. on the 4th; Md. on the 5th, 7th and 14th; Miss. and N. J. on the 6th; Ala. on the 15th and 17th; Iowa on the 18th; Kan. on the 20th and 21st; N. Y. on the 23d; Mass. on the 27th; R. I. on the 30th.

(3.) *Polar Bands* on the 19th at New Haven; on the 21st and 28th at Buffalo; on the 22d at Alpena; on the 19th, 21st and 28th at Iowa City.

(4.) *Zodiacal Light* on the 1st at Corning, Mo.; on the 4th at Linden, Ill.; on the 6th at Point Pleasant, La.; on the 25th at Wooster, Ohio.

(5.) *Water and Barometer Oscillations*.—At Marquette, on Lake Michigan, the water and the barometer oscillated together twenty-five times, and in a contrary manner sixty-five times.

(6.) *Zoological*.—*Wild Geese* were seen going S. E. at Madison Barracks, N. Y., on the 1st; going N. at New London on the 1st, 2d and 11th; going S. at Detroit on the 21st; going N. at Dubuque on the 1st, 17th, 22d and 26th; at St. Paul on the 2d and 8th; at Atlantic City on the 1st, 2d and 8th; at Wood's Hole on the 8th, and harbor full of geese on the 14th. *Blue Birds* arrived at Standish, Me., on the 2d; at Amherst, Mass., 1st; on the 2d, Contoocookville, N. H.; Auburn, N. H., 1st. *Wild Pigeons* arrived, Independence, Iowa, on the 3d; going N. at Cresco, Iowa, on the 2d; on the 11th, at Auburn, N. H. *Robins*, on the 6th, at Springfield, Mass.; at Cornish and Standish, Me., on the 2d. *Swallows*, on the 29th, at Morgantown, W. Va.; at Ellinwood, Kan., on the 2d. *Buffalo Gnats* first appear at Memphis on the 22d; on the 29th, very destructive to stock. *Grasshoppers* reported on the 20th from all parts of Colorado Territory; at Leroy, Kan., young grasshoppers, very numerous and destructive, were actively attacking vegetation.

PUBLISHED BY ORDER OF THE HON. WM. W. BELKNAP, SECRETARY OF WAR.

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